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UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH ADMINISTRATION

Washington 25, D. C.

NEEDED - A PROFESSION OF AGRICULTURAL JOURNALISM 1/

by

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When George Church and Tad Moses first invited me here to your Texas meeting, they told me the program theme would be, "We're all in the same business." They suggested that I might define the goal of that theme, in terms of agricultural journalism. I agreed to do so, provided you would keep in mind that I was trained in engineering, not in editing.

Probably a minor qualification is in order. Back in the days before the First World War, before I went into the Army, we had in the Department of Agriculture what was called the States Relations Service. It linked Departmental extension and research work with that of the land-grant institutions. We had an editorial division of which the late W. H. Beal was chief. In addition to serving as a specialist in soils and engineering science, I also served for several years as assistant chief to Mr. Beal. In those days it was believed that a fellow who had written an article or two could readily be made into an agricultural journalist.

Since you have asked an agricultural engineer to define the goal of your work in the business of agriculture, I shall use the structural approach. Frankly, it is of secondary importance to the farmers of your State whether

1/ Talk prepared for delivery before the 34th Annual Conference of the American Association of Agricultural College Editors Kerrville, Texas, at 10:45 A.M. CST on September 7, 1950

you are on the experiment station payroll, the extension payroll, or both, or whether your specialty is bulletin editing, radio, or visual aids. It is of far greater importance, to farmers and everybody concerned, that those who bring them information coming out of our vast reservoir of agricultural research are professionally qualified to do so.

Weakness in Telling of Research

I had been on my new job in the Department of Agriculture for about a year when my attention was called to a meeting that had been held at the University of Illinois on June 14, 1913. The host of that meeting was Dr. B. E. Powell, editor of agricultural publications for the Illinois Experiment Station. With him at that meeting, at which your association was born, were a handful of editors from other States. They were men who envisioned agricultural college editing as a profession. They were men with a deep-seated conviction that this job was more than just another newspaperman's beat. They saw that their work dealt with an instrument of improvement; that it required a magnified sympathy with farmers and farm people. They sensed the need for sound background and training.

Among that group of founders was our friend Andy Hopkins of the University of Wisconsin. By July 1, 1913, he had earned a high reputation as a skilled farm paper editor. Then he moved over into the college field and further distinguished himself by his pioneer work in the kind of profession about which I want to talk today.

It is easy to measure mechanical progress since 1913 by comparing the speed of jets with that of the original Wright models. Yet, it has been only recently that some of the principles established by the Wright Brothers

have been understood. Can it be that the same is true in agricultural journalism? Certainly, in the business of agriculture we have pressed forward at rates as astounding as those achieved in the business of flying. But every now and then we hear that the information programs of agriculture are not keeping pace with its science. The latest reminder along these lines came in the form of a recommendation from the study group headed by Mr. D. Howard Doane which analyzed the effectiveness of agricultural research in the Department and at the State experiment stations. The group recognized that great accomplishments had been made in agricultural research. But they pointed to a weakness in revealing the results of this research to the public. They included a strong recommendation that steps be taken to improve this particular field. And the recommendation has since been adopted by the Special Subcommittee of the House Committee on Agriculture headed by Congressman Stephen Pace.

Three years ago I met with ACE at the University of Minnesota. At that time your program featured my talk as "Looking Ahead With Experiment Stations." I outlined for you certain beliefs concerning the place of the agricultural research editor. That outline of principles still holds. The ideas I presented at that time have been wholeheartedly endorsed by State experiment station directors. As proof I need only mention the support given by them to the three conferences of station editors held in Washington since 1947.

Since I met with you at Minneapolis the Department has also developed some new angles in the matter of research information. From Research Administrator P. V. Cardon on down, departmental research leaders

recognize the significance of a sound research information program. The fact remains, however, that a distinguished group of appraisers and an important subcommittee of Congress feels that research is weak in the informational field.

What Makes A Profession?

The Doane Report is a matter which should be of serious concern to your group. Are there principles set down by your founders back there in 1913 that you have not properly interpreted or applied? What can your association accomplish in the way of giving leadership toward better utilization of those early principles? More important, what can you do to establish new ones that keep pace with the need of our streamlined agricultural activities today? As an agricultural engineer, may I use the analogy of what happened in our profession before it became recognized as such?

'Way back there, about 50 years ago, when agricultural engineering was in its babyhood, people thought it didn't take much to become an agricultural engineer. They thought that anyone boasting an engineering degree and who knew what a farm looked like could qualify. As the years went by it became quite evident that this wasn't so. The American Society of Agricultural Engineers was founded in 1907. I joined it in 1914. I was one of those who pointed out that the original concept of an agricultural engineer was haywire. A wedging of the basic functions of engineering and the basic profession of agriculture was necessary. There was a fundamental fact which we had to face - when the activities of both agriculture and engineering were shaken down to rock bottom we had to recognize that there was just one science. Some of those early meetings were rugged. The idea of an agricultural

) engineering profession was bitterly fought by both factions for many years.
People would ask us, "Are you an engineer? Or are you an agriculturist?"

We had to admit that we were neither. We were agricultural engineers. And so the wedding took place. Today The American Society of Agricultural Engineers is a strong professional organization. We set about building a profession in a field that combined the engineering and agricultural phases of science. The activities of the Society serve as an incentive for men to become full-fledged agricultural engineers. The profession is recognized in the land-grant colleges, the Department, and by many private industries that rely on and participate in the professional functioning of the Society. Over the years the requirements for membership have stiffened quite a bit. The Society does not shrink from problems put before it. These are studied by capable committees, with the ASAE Council serving as the steering agency of the Society. Agricultural Engineering, the house organ of the Society, is recognized throughout the world.

Establishing Recognition

Now, when we look at the field of agricultural journalism, we must admit that it needs greater maturity and development and closer unification to render its fullest service as a profession. Strong departments of agricultural journalism at our land-grant institutions are few and far between. Even the few good ones don't do much in the way of professional teaching. Either they take agriculturists who like to write and put them in the harness, or too frequently, they find it necessary to take on writers who lack the essential agricultural training and background. Such expediency too often results in a poor marriage. There must be a reason why deans and directors so frequently

come to me and say, "If I could only get an editorial staff made up of people competently trained in both agriculture and journalism."

In training and thinking you still have to become a more closely-knit group which, through committee action, will have to lay down principles.

A strong professional organization should have a clearly defined goal of objectives, a code of ethics, standards of procedures. A strong professional organization should have a journal, even if published only once a year, containing summaries of convention proceedings, committee actions. A professional society has to offer more than mutual admiration.

On the basis of this outline, how strong is the Association of Agricultural College editors in the professional sense? Do you have the same standing as do other professional groups, acknowledged by the land-grant institutions and publicly acknowledged as authoritative bodies in their fields?

Early in the 1940's Lester Schlup, Chief of the Division of Extension Information in the Department, advocated to your group a program that would include:

- " (1) An increase in dues to provide the financial underpinning.
- " (2) Printing of a professional journal rather than the informal ACE and putting its editorship on a permanent salaried basis to assure continuity in professional treatment.
- " (3) Formulation of principles, standards, ethics, and objectives for the Association.
- " (4) A mechanism for maintaining a definite continuity in a long-time professional program of working toward objectives.
- " (5) Closer ties with the Land-Grant College Association."

Lester Schlup tells me that a few but by no means all of his proposals have materialized. Your dues have been raised. The ACE now is a printed instead of a mimeographed house organ. A new constitution was adopted last year. And the Association gives publicity support to the annual meeting of the Association of Land-Grant Colleges and Universities. However, the question with which you should be most concerned is to what extent you are actually contributing toward building a sound profession of agricultural journalism.

Back there in the days when Dr. Powell called the first meeting of your association, there were little-heard-of fields of agricultural activity that are now very prominent. Others, like agricultural engineering, were still debating their status in frustration. Why is it that some of these fields are now so solidly established as a profession?

You are in a better position to study your own situation and give the answer to the questions raised here today than I am. The opinion held of your professional stature is important. For instance, authorizations for official travel may depend on it.

Professional Leadership - Whose Responsibility?

Back in those years when I was assistant chief of the editorial division of the States Relations Service along with holding several other responsibilities, I learned by experience what it meant to be in a field for which I was not fitted by training. Not only did I feel like a jack-of-all-trades, but I was one. I wonder how many among you have not had that feeling at times? There must be a basic reason why the editorial departments are so frequently assigned quarters in the basement or attic; why the editor so often has to take

on nondescript chores ranging from the duties of janitor to teaching English.

I have observed too often among our editorial people, both at the State experiment stations and in the extension services, that some are not fitted by training and thinking to develop the concepts essential for their work. What can you, as a group, do to encourage professional training in agricultural journalism at our land-grant institutions to obtain a larger corps of trained workers as the years go on? What can those among you who lack essential training and agricultural background do to get it?

The Doane study group did not discuss the profession of agricultural journalism. But it did say that the job of telling about agricultural research was not being effectively done. Directors and administrators of research may be subject to criticism for such shortcomings. But essentially the failure is due to a lack of properly trained people. In the Department and at our State experiment stations and extension services we must rely on the land-grant colleges to furnish the professional personnel that is capable of doing the work required of us.

The over-all body to which our land-grant institutions look for guiding principles is the Association of Land-Grant Colleges and Universities. However, in all professional matters, the Association relies on professional bodies for their judgment and recommendations. Has your group ever gone on record urging the Association to increase opportunities for professional agricultural journalism training?

Minimum Professional Training

In view of the women members of ACE, many of whom are very capable editors, let me say that for the purpose of this discussion I am broadly putting

home economics in with agriculture. There is a division, of course, and what I have to say about agricultural journalism would apply equally in the field of home economics journalism. Home economics journalists should qualify as home economists, the same as agricultural journalists should qualify as agriculturalists. And both should have ample training in journalism.

I realize that some of our educators think you can make an agricultural journalist by giving a course in news writing to a student taking almost all the rest of his work in agriculture. Now, one course in mechanical drawing does not make a professional agricultural engineer out of an ag student. He must be a thoroughly trained engineer as well as a thoroughly trained agriculturalist. And a professional agricultural journalist will need thorough training in all the different media of communicating ideas coupled with a thorough training in agriculture. If that sounds like a tough educational program--well, that's what makes it professional.

Now, I can see on your faces what some of you are thinking. You're asking: "Is Bob Trullinger gunning for me? Is he talking me out of a job?" In answer, let me say that the professional qualifications I have outlined represent a GOAL to shoot at in the future. The record will show that I earned my undergraduate degrees in civil and mechanical engineering. That was before we had a profession of agricultural engineering. But in the interim I've accumulated abundant information in the field of agricultural science to the point that the American Society of Agricultural Engineers, even under its present rigid membership requirements, has never raised a question as to my qualifications as an agriculturalist.

Support of agricultural journalism on a truly professional basis is not

likely to hurt any of you. The Civil Service Commission found out long ago that the only way it could raise standards for future recruits into government service was to exempt the people who already had jobs. A similar policy prevails on most land-grant college campuses. Accepting a more ambitious set of professional standards might encourage some folks to take a graduate course or two in order to earn promotions. Those of you at land-grant institutions certainly are in a position to do so.

Building the profession as I have suggested would have to be worked out as a long-term program in which the colleges, on the basis of careful research undertaken by them under your leadership as a professional organization, would steadily raise their standards of training. Every profession should take the lead in research to expand the horizons of knowledge. To have progress in education, the new knowledge coming out of research must constantly be added to what is already known. Research requires a scientific approach to replace intuition with testing and proof wherever possible. From examples in various other agricultural fields we may be sure that, as the supply of professionally trained personnel increased, more would be expected from applicants. With better professional training, better pay for services rendered would also be in the offing.

Research and Extension Information

In the past year we have repeatedly heard the question, "What are the functions of the experiment station editor? Where do his functions end and the extension editor's functions begin?" There are today 22 land-grant colleges that have separate station and extension editors. In some States it works well. For instance, here in Texas, Tad Moses has sensed the

feeling of urgency and excitement that goes with digging up research and getting it in the news. And Louis Franke has now become internationally famous as extension editor. The fact remains, however, that some of you look at a divided editorial office with misgivings. One station editor recently said it this way: "The point is, each of us is thinking of the welfare of a segment of the over-all objective of our college rather than the objective as a whole. Even with the best of intentions, we tend to think experiment station first and extension second, or vice versa."

Under the concept of a profession of agricultural journalism such as I have outlined, I wonder whether these problems wouldn't evaporate quickly. I would expect the extension editors and the experiment station editors to exercise an influential part in their professional society. And if that society functioned as I envision it would, there would be little likelihood of petty rivalries.

Research information is an organized activity on most of the 53 land-grant college campuses, which are widely separated as to distance. On these campuses there is an infinite variety of administrative policy affecting the handling of research information. The Office of Experiment Stations and the Department have always held, and continue to hold, that determination of administrative policies dealing with State experiment station work rests in the hands of the director of the station. That includes editing station publications and reporting on research developed by the station.

A truly professional society would be in a position to study the extent to which separation of the editorial function is a handicap in maintaining unity of purpose and action, and then report the findings to the proper

land-grant college committee for consideration there. In the meanwhile I hope that, through the efforts of your organization, State experiment station editors and extension editors can begin to focus their thinking along lines of common interest in a manner which will meet the demands of farmers.

Broadened Scope

You call yourselves an association of agricultural college editors. Would it be possible to adopt a name more suitable to a professional society? Provided, of course, that some of the principles I have outlined for a professional society are established? Under the new constitution which you adopted last year, membership is not restricted to college editors. With your change in constitution your name in reality should also be changed. I don't intend to make an actual proposal. You people are better qualified to pick names than I am. But as an engineer I want to spark the idea. Why not a "Society of Agricultural Journalism," or something better if you can devise it, that indicates fusion in the two fundamental fields of knowledge you profess to be experts in? A society of agricultural journalism would give more than an associate membership to farm paper editors and agricultural journalists employed in other fields. It would also offer them full, active membership, within the professional standards and training requirements to be established.

Naturally, to be recognized, the standards of professional agricultural journalism would need to be high. However, I personally subscribe to the idea of extending membership of people who can qualify from the various branches of the agricultural business, not just college editors. In the

American Society of Agricultural Engineers we have found some of our most able leaders among men employed off the campus, in various agriculture-associated fields. It has been our experience that these men have been of a professional stature that would not let their private interests influence the welfare and influence of the society. Such people have brought to us something from the great commercial fields that has been a distinct asset. It has served the profession of agricultural engineering as a link between the research on the campuses and related activities in the factories and on the farm, where the products of research are adapted and applied for public use. You can't discount the influence of that relationship. With the splendid records of the farm papers throughout our agricultural history, I believe that a society of agricultural journalism would benefit from closer association with the professional people of the farm press as greatly as the ASAE has benefitted from its association with the professional agricultural engineers in business.

Professional association in the broader sense, built on sound procedure, ethics, and professional ability, appears to be the need of the moment if the field of agricultural information is to meet the requirements of American agriculture and a free and decent human society.

This business of modern agriculture, as practiced in the United States and the non-totalitarian world, rests on certain democratic principles. Among these are the right to own property and to operate it at a profit; the right to use our training, our skills, our intelligence and ingenuity as an incentive to progress. These rights are enjoyed within restraints democratically arrived at by a free people under the laws made by them. The exercise of these rights has been a greater influence than anything else in stimulating

our tremendous agricultural progress. Fundamentally, it is our exercise of these rights that is being challenged. So I say, whether your immediate activities are on the farm, on the land-grant campus, in the research laboratory, or in agriculture-related private industry, we're all in the same agricultural business. It's a business that demands many fields of ably trained professional men.

Today, America has a job to do which is everybody's business. Yet it is a business that requires the highest degree of professional skill and esprit de corps. The world needs to be convinced that ours is the system of progress and of welfare for the greatest number of people at home and abroad. Carrying forward that conviction presents a particular challenge to agricultural journalism. Conviction in an intelligent and advancing society must be based on truth. Telling the truth about agricultural research, and all that it has done and can do to alleviate the miseries and suffering of mankind, is a task of the first order. The task lies before you agricultural journalists--as your part of the agricultural business--in very trying times.

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UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH ADMINISTRATION

t. 19-24, 1950

Washington 25, D. C.

TRENDS IN AGRICULTURAL RESEARCH 1/

by

R. W. Trullinger
Chief, Office of Experiment Stations
and Assistant Research Administrator

Last summer I received an invitation to attend this meeting, accompanied by what was called an "original passport" from the State of Texas. The last line on the "passport" read: "A true Texan never quits." The fact that I am here is proof that you have a number of true Texans on the State experiment station staff. Not the least among them are Director Lewis and Tad Moses, your persevering station editor.

I do not want to dwell upon the numerous original contributions to agriculture made by your State; the history of agriculture recognizes them. It was in Texas that Seaman Knapp, confronted by the problem of the invading boll weevil, developed the idea of demonstration farming that led to the system of cooperative extension work. Under it, agricultural research is translated into practice on the American farm. It was in Texas, too, that some of the pioneer soil conservation work got started. As agriculturists you are aware of these and many other important facts. As agricultural research people you may take a just pride in the part your State experiment station played in these accomplishments.

1/ Talk delivered before the Annual Meeting of Texas Experiment Station Workers, held at College Station, Texas, October 19-24, 1950.

Today's Concept of Research

The time-honored layman's concept of a research man was that of a bespectacled, bearded, or goateed, benevolent-looking old professor standing behind closed doors in a private laboratory. He peered thoughtfully at a test tube containing mysterious fluids. Or, at a crucible containing pulverized magic. In isolated silence he appeared inspired by his solitude.

That concept, as you research workers appreciate only too well, no longer holds. The older ones among you will testify that it probably was all wet from the beginning. The best research men today, as in the generation of my college days, are those who establish the widest contact with fellow scientists and the public. They are avid students of technical literature, not only in their own specialty but in many interrelated fields. Above all, they don't lose touch with life and with people.

It is true that in the past we have had some great individualists who served as the founders of agricultural research. Some of them gave our generation a background on which present-day professional specialties are built. Some such individualists could be found on the staff of almost every State experiment station, including yours in Texas. They were the pioneers, the builders, who recognized the need for research in agriculture. They also appreciated what it took to meet that need.

Sound Research -- A Texas Tradition

Through my years of service in the Office of Experiment Stations, dating back to the midteens of the century, I visited the Texas Experiment Station a number of times. On those official visits I had opportunity to

study operation of the station, its personnel and facilities, and its research program. I gained impressions that have remained, even in later years when administrative duties kept me from returning here often. Some of the accomplishments, which I had the privilege of witnessing in embryo, met the pressing needs of a rapidly developing Texas agriculture. They also established milestones of progress in agricultural science, both as to techniques and as to practice.

Karper's sorghums were developed to meet a need for feed in type-of-farming areas where the crop was destroyed by sudden but prolonged drought periods, accompanied by high, dry winds. His objective was a feed crop which would withstand the climate and prosper under severe conditions and would still yield in a worth-while manner. But he learned that simple testing and selection procedures were not adequate to meet the situation. Mental gyrations into the profound realms of physiology and cytogenetics were required before actual progress was realized. Mangelsdorf and his corn didn't just happen by rule-of-thumb procedure. To conquer cotton root rot, the whole plant science staff went eventually into the most profound depths of fundamental science. Dickson's conservation of water, as translated into increased yields of corn and cotton, is a monument to the necessity of recognizing the problem and then doing what it takes to solve it. Smith's mechanical harvesting of cotton, in which it became necessary for Killough to spot the bolls on the cotton plants through genetic studies, followed by the development of appropriate breeding techniques, is a monument to the necessity of doing "what it takes" in research. Yarnell's Texas raspberry is another accomplishment.

These and many other examples stick in my memory. They add up to the fact that you who are current members of the Texas station research staff have a rich heritage based on vision and endeavor. You also have a tradition which it is not only to your interest to uphold, but which you will want to build upon in future research and progressively strengthen.

In The Vanguard of Practice

To begin with, the directors of the Texas Experiment Station and of the other stations throughout the country have been men of broad vision, men who recognized that ability to render professional service is the key to professional growth. Over the years, they have thought and moved with the times. They have insisted that research should remain in the vanguard of practice. Only thus, they maintained, could agriculture become a dynamic industry, adjusting itself rapidly to changing needs and problems. Research thus became the dominating force in the organization of agricultural technology.

There was a time when the average experimental substation was an almost autonomous institution linked with the main station only by a slender administrative thread. It was almost an independent outpost, more or less self-sufficient. In so large an area as Texas, it was frequently widely separated from other substations and from the main station. Because of this isolation, it was not possible to give it the sympathy and support it needed in both administrative and technical lines. Some of the substations were faced with the necessity of farming for income to support the institution. This was, of course, fundamentally a mistake. It was directly opposed to the basic policy and philosophy of a well-coordinated, carefully synchronized research activity which now prevails.

I well recall how at least two of your former directors faced that situation. Director Conner, reinforced by principles laid down in the Hatch Act, pointed forcibly to the fact that his responsibility at the substations was to spend money on research to solve the problems of Texas agriculture and not to farm for profit either to return money to the State treasury or even to support the substation. He took such a firm stand on this point as virtually to save the State appropriation for an important substation. He set a precedent and established a policy on this fundamental point, namely, that agricultural research is one thing and farming for profit is another. It is now generally recognized by administrators and the public that agricultural research should not be expected to be self-supporting. This is a basic principle in the regulations governing the use of the Federal-grant research funds.

Coordinated State Research Programs

From the technical standpoint it is desirable that the projects and administration of the State experiment station and of the substations be closely coordinated. Techniques can be developed at the main station which the substations cannot work out by themselves but which they may use effectively. On the other hand, the substation may contribute by serving as a pilot plant to test the usefulness of techniques developed at the central station. Long observation has indicated that major benefits accrue to the substations where they are closely linked in organization to headquarters. Your research leadership in Texas has gradually changed the system which began with virtually autonomous substations to what outside observers now regard as a well-coordinated State-wide research program.

For example, you now have a statistical service operating at your main station. An effective statistical and biometric service is today recognized as one of the essential techniques to a research program from the planning stage through to the analysis and presentation of the final results. Few substations could support such a service. Such technical services now become available from the main station, including especially the advice and assistance of the research leaders who are usually on the main station staff. In that connection it is now well to consider the fact that currently your station staff includes nearly 60 members who are part-time teachers or extension workers. That is a fairly recent development at your station, but it is an asset which cannot be overlooked and for which you may thank an able administrative leadership.

Combined Approach

The above points are a few of many that might be cited. They all add up to the fact that in the face of a dynamic and rapidly changing agricultural industry, the research program must constantly move ahead and be in a position to serve most effectively the needs of agriculture. The old-time lone-professor idea in agricultural research procedure is gradually being replaced by a procedure of cooperative endeavor in research. This is based on the modern understanding that few of the major agricultural problems are governed by one subject matter or one specialty treatment. We do not overlook the importance of the individual research leader. In fact, he looms more important than ever before in that he becomes a leader in thinking, planning, design, and conduct of research. Frequently he must assume responsibility in the integration of several different technical

specialties to bring about the coordinated attack necessary to solve a major problem.

Research today is not what it was 10 years ago or even 1 year ago. New developments in fundamental science are coming to light every day which may be used in one way or another to facilitate and expedite agricultural research. The last war brought many of these technical tools to our attention, while others were already being put to use.

Aids to vision, such as the electron microscope, have added immeasurably to the precision of procedure in agricultural research. Radar supersonics, cosmics, antibiotics, nuclear physics, atomic energy, and many other technical principles and materials and equipment have entered into the agricultural research picture in a most striking manner. No research worker can be expected to familiarize himself and become proficient in all these research techniques. The fact remains, however, that all research workers have to be guided by but one set of scientific principles. Therefore, it is important that research workers have basic training in mathematics, physics, chemistry, thermodynamics, biology, and related subjects. They need this knowledge to recognize the need for modern techniques and to make use of them in the course of their research.

For example, I recall rather vividly when one experiment station, utilizing the specialized information of its physics department, established that vibrations of supersonic frequency could be used to reduce the bacterial count in perishable foods to the point where keeping qualities were increased very appreciably. Almost at the same time another station, also

relying on its physics department, found that supersonic vibrations might be used to destroy certain insects by rupturing vital organs. Many other uses of this technical procedure have subsequently been developed. Similarly, the service of personnel specially trained in the use of radioactive materials as tracers in plant and animal nutrition, in the differentiation of soil minerals, and in other procedures, is gaining a place in experiment station research. The whole field of antibiotics research has developed a multitude of specialties. In addition to its use for the treatment of various diseases, for instance, aureomycin apparently is becoming recognized as a factor in animal nutrition.

Facilities Grow With Services

Although, since my earlier participation in the administration of Federal-grant research funds here in Texas I have not been able to return year after year, I have endeavored to keep up faithfully with the director's and our Office examiners' reports. Nevertheless, on coming here now, I can't help but be impressed by the magnitude of your research facilities and the scope of your research program as I find it today.

I recall my first visit to the Texas station nearly 30 years ago. The entire staff on the main campus was housed in parts of two buildings. There were 17 substations, on paper at least, but only 7 or 8 of these were really active. If I remember correctly, only one member of the station staff had acquired a Ph.D. degree, that being the director, and his was a relatively recently acquired Ph.D.

However, the Texas station was being challenged with all sorts of agricultural problems. It was in the \$200,000 class in those days so far

as financial support from all sources was concerned. Agriculture in the State called for not only increased facilities of men and equipment, but for personnel trained and experienced in a manner commensurate with the situation.

In the past 10 years, for example, the total income of the Texas station from both Federal and non-Federal sources has increased favorably. From a little over one million dollars in 1941, the data for 1949 which is the latest year for which figures are available to us, showed that the Texas station had available more than \$3,000,000 to support its research program. Yet the 1941 figure showed a five-fold increase during the previous 20 years. It is significant that these increases were paralleled by increased training and competence of technical personnel.

In 1941 the Texas station had a total personnel of 160, of which 158 were full-time research workers and 2 were part time. In 1949-50 the station had a total personnel of 340 research workers, of which 235 were full time on research. I noted that some 70 of these people had acquired Ph.D. degrees in one specialty or another. Ninety-one had masters' degrees. Masters' degrees are the rule rather than the exception. I do not presume to suggest that vast sums of money available for research, together with a large number of substations and an army of research personnel with Ph.D. degrees, make for success in an agricultural research program. But I do know from long experience that gradually increasing public support, resulting in the acquirement of greatly increased research facilities over the years, can only be the result of service rendered to the public. Long association with

agricultural problems and with the character and scope of the research necessary for their permanent scientific solution are essential. Such problems need a research staff consisting of people with a thorough background of formal education in the fundamental sciences, and with mature specialization in chosen subject-matter fields.

The Texas station now lists 31 substations and field laboratories working on the problems of as many different type-of-farming areas. I am told that the system of substations is not yet extensive enough to cover the major types of agriculture of your State. The fact remains, however, that this great system of research substations has grown out of popular demand from a farming public for research service.

Regional and General Trends

Agricultural research in Texas serves as a good case history of research trends, regionally and nationally. A few weeks ago I had the opportunity to sit in with members of the Southern Extension Directors' Committee on Cotton Production. They were making plans for mobilizing education on a stepped-up cotton-production program for 1951. It was repeatedly pointed out that the increase must not come at a sacrifice of gains made in grassland farming on acres unsuited for cotton. The Extension directors emphasized that most of the increase in production must come through more efficient use of know-how coming out of research findings. And so the extension services in the Cotton States are organizing their programs around the theme of more intelligent use of seed, fertilizer, insecticides, machinery, and labor. It is encouraging to note how a major production problem in 1951 was being tackled on

the basis of significant research, a great deal of which has come out of the Texas station, but also out of a number of other southern stations, out of regional programs, and out of research in which the Department of Agriculture is a close cooperator.

Time does not permit to go into details on the regional efforts. They are, however, most significant. We have, for instance, such undertakings as the "New Plants" regional project of which Director Lewis is administrative adviser for the Southern region. The Research and Marketing Act gave additional incentive to regional cooperation as between stations and as between the regions and departmental research agencies.

Agricultural research carried on under Federal grants to State experiment stations, regional research projects, and station projects cooperative with Department research, has become a big enterprise. A special invoice on this enterprise is currently near completion. It will soon be sent by Research Administrator P. V. Cardon to Hon. Stephen Pace, chairman of a special subcommittee of the House Committee on Agriculture.

Earlier this summer Congressman Pace's committee had authorized a study group of agricultural experts, headed by Mr. D. Howard Doane of St. Louis, to make an impartial appraisal of the effectiveness of agricultural research in the Department and at the State experiment stations. Following the adoption of the Doane study group's recommendations, Mr. Pace asked the Agricultural Research Administration to supply the detailed report on projects which will soon go up to Capitol Hill.

After its delivery and probable printing by Congress it should become a valuable document in the history of agricultural research.

The Challenge

Today, and for some years to come, it is production, rather than surpluses, that is likely to give us our biggest headaches. We all recall a popular slogan of a decade ago: "Only the productive can be strong. Only the strong can be free." If that slogan ever deserved serious attention, the time is now. Spearheaded by the United Nations, the whole world has been made conscious of the plight of the ill-clad and the ill-housed populations of many countries. If all the land now under cultivation were yielding bumper crops, in spite of present improved farming knowledge and practices, there would still not be enough to give all of the world's population an adequate diet.

Even here in the United States, where fertile land, improved technology, and a comparatively small population per square mile have combined to give us a temporary advantage, time may be running out. This year our population is reported to have reached in excess of 150,000,000 souls. In one form or another we appear destined to be relied on, as the source of food and fiber in many parts of the world. Our productive acreage has not increased with our increase in population. But for the sake of agricultural research such as that you are contributing here in Texas, and as your colleagues are contributing in other States and in the Department, our Nation's farm production would be hard pressed.

In closing I want to leave with you one thought I have always held. Through the years, the closer I came to major agricultural problems, this

thought has become a matter of faith. The surest way out of any problem is research built on a sound premise and carried on by intelligent, well-trained, well-equipped personnel. Whether the future confronts us with surpluses or production problems, the best way to find the answer is with more and better agricultural research. To us who are engaged in this important field of public service the challenge is to be able and ready to tackle the many unsolved fundamental questions that will face us in either situation.

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